

Effect of The Amino Acid Taurine on Some Growth Parameters of Grass Carp *Ctenopharyngodon idella* Fingerlings

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Abstract: The objective of this study was to evaluate the effects of taurine, an amino acid additive, on grass carp *Ctenopharyngodon idella* fingerlings (3.16 ± 0.14 gm) growth and feed utilization in glass aquaria for 70 days. Before beginning the feeding experiment, 120 fish were acclimatized for 10 days in the laboratories of fisheries department and marine resources, Agriculture College, University of Basrah. Fish fed dietary taurine at levels of 1% (T2), 2% (T3), and 3% (T4) were compared to fish fed a control diet with no taurine (0%, T1). The weight gain (WG) in the T1 was 16.95 g, which was significantly ($P \leq 0.05$) higher than the other treatments. T1 had a higher ($P \leq 0.05$) mean relative growth rate (RGR) (54.89 ± 5.66 %) than the other treatments. The specific growth rate (SGR) and daily growth rate (DGR) of T1 were 0.72 ± 0.06 % day⁻¹, and 0.28 ± 0.01 g, which was also higher ($P \leq 0.05$) than other treatments supported with different levels of taurine. Significant differences ($P \leq 0.05$) were found in the food conversion ratio (FCR) and food conversion efficiency (FCE) between T1 and the other treatments (T2, T3, and T4). It is clear from the current study that the T1 (0% taurine) better than the other treatments in growth and food utilization indicators. It is concluded from the current study that the addition of taurine (1, 2 and 3%) had inhibited the growth in grass carp fingerlings.

Keywords: Grass carp, Growth, Taurine acid.

Introduction

Amino acids are recognized as important biomolecules, act as raw materials for building proteins, intermediates in various metabolic pathways (Wu, 2010). The proper amino acid balance in fish diets can aid in the development of fish nutrition, which improves the growth and economic returns of fish farms (Li *et al.*, 2008). Taurine (2-Aminoethane sulfonic acid) is different from amino acids, does not enter into the proteins building (Ripps & Shen, 2012).

Taurine (Tau) may be a conditional amino acid in freshwater fish, during early life stages, such as the larval stage (Zhang *et al.*, 2006). It was first described in ox bile (Tiedemann & Gmelin, 1827; Sampath *et al.*, 2020). Taurine is one of the most abundant amino acids in animal tissues, and found in high levels in seafood and meat (Brosnan & Brosnan, 2006). Many vertebrates have the ability to synthesize taurine, Although fish can synthesize taurine in the liver from